# NSSC Update

Larry T. West
National Leader – Soil Survey Research and Laboratory

# Structure and Personnel Changes

- Structure
  - National Geospatial Development Center changed to Geospatial Research Unit of NSSC
  - Function unchanged
- NSSC Director
  - Bob Ahrens retired Dec. 2008
  - Jon Hempel (Aug. 2009)

# National Leaders

- Interpretations
  - Karl Hipple retired Jan. 2010
  - Maxine Levine acting
  - Position advertised soon
- Standards
  - Craig Ditzler retired May 2010
    - Project leader for soil survey of Dubai, UAE
  - Marc Crouch acting
  - Position advertised soon
- World Soil Resources
  - Hari Eswaran, Washington
- Technical Soil Services
  - Chris Smith, Washington
- Research and Laboratory
  - I am still here
- Soil Business
  - New position
    - supervision of GRU, databases, GIS, remote sensing, digital soil mapping
  - Jon Hempel acting
  - Advertised and closed

# NSSC Personnel

- 26 soil scientists
  - Conservationists, editors, computer specialists
- New since 2008
  - Joe Chiaretti – Standards
  - Doug Dotson – Laboratory
  - Sue Southard (NPS liaison; Davis, CA) – Interpretations
  - George Teachman – Interpretations
  - Shawn McVey – Standards
  - Skye Wills – Research (statistics)
- Retired
  - Tom Reedy
  - Arlene Tugel
  - Dave Lightle
  - Alan Price

# Interpretations

- Web Soil Survey enhancements
- NASIS 6.0 – released in Spring
- Calculated K and T
  - Consistent, science-based  interpretations
  - Major changes in some states
  - Evaluation underway
  - Proposed implementation, Jan. 2011
- Subaqueous Soil Interpretations – initial interpretations design/criteria
- NCCPI – irrigated systems
  - Environmental susceptibility

# Interpretations

- National committee for urban interpretations – George Teachman
- Web-based guide to make and test new interpretations
- Dynamic Soil Properties
  - Working toward production phase
- WSS marketing
  - American Society of Landscape Architects
  - American Society of Biological and Agricultural Engineers
    - Continuing education session
  - Other non-traditional groups

# Standards

- 11th edition of Keys to Soil Taxonomy recently published Maintenance of Soil Survey Standards
- Field Book for Describing Soils in revison
  - New edition expected in 2011
- National Soil Survey Handbook
  - Several parts being revised
    - Soil Investigations
- Discussions of revision of Soil Survey Manual
- Discussions of revision of Soil Taxonomy
- Universal Classification System (world wide use)

# Training

- 11+ courses
- Remote Sensing Applications for Soil Survey.
- Digital soil survey
  - To  be offered by Purdue (principles) and Dartmouth (Arc SIE)
  - Expected to be available for university students and NCSS people Spring, 2011
- 4 NCSS courses will be via the internet (instructor led) in 2011
  - Digital Soil Survey Data Editing
  - Digital Soil Survey Data Management
  - Management of Soil Survey by MLRA
  - Application of Soil Data Viewer and ArcGIS for Technical Soil Services
- Developing large sets of OJT modules to assist field staffs and to provide consistency in across the NCSS

# Training

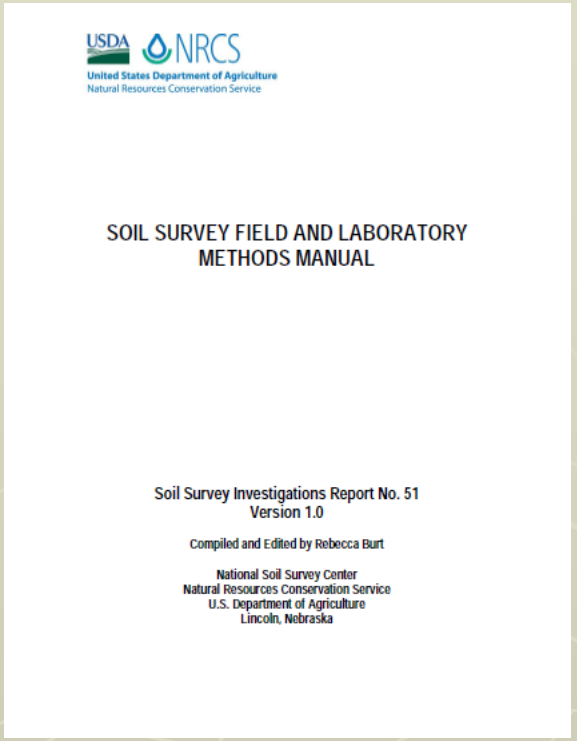
- Soil Geomorphology Institute – currently in session at UC-Davis
  - Principles of soil geomorphology, pedology, hydrology, and stratigraphy to better understand the landscape for map unit design and landscape modeling
  - 3 week intensive session w/ 6-7 days in field
  - Rotating locations
- Soil Scientist Institute
  - Alternant years with SGI
  - Scheduled for 2011 at Kansas State University

# Soil Survey Laboratory

- 5 soil scientists
  - Reinsch – Asst. NL Research and Laboratory
  - Tuttle – geophysical
  - Harms – SCAN and SNOTEL
  - Pullman – sample and analysis scheduling
  - Dotson – laboratory database
- 1 Chemist - Ferguson
- 18 technical staff
- 2 clerical
- 6 STEP students
- Supervisory soil scientist position advertised

# New Areas of Support

- SSO laboratories
  - Equipment for basic analysis
    - Immediate data needs
    - Pre-screening of sites for complete analysis
  - Methods manual
  - Safety manuals
- IRIS tubes
  - Used to evaluate seasonal soil saturation
  - Hydric soils and wetlands
  - Interpretations

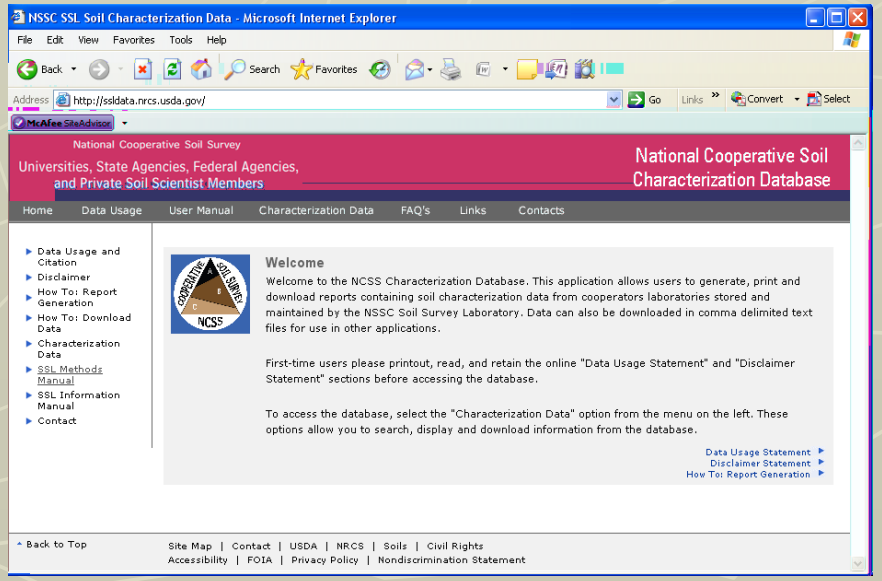



# Soil Quality Analyses

- Particulate organic matter (POM)
  - Rapid turnover pool in Century model (COMET-VR)
- Active carbon
  - Indicator of carbon aggregation or degradation
  - Kit for field office use
    - Demonstration
    - Rapid results
- β – Glucosidase (BG)
  - Fungal enzyme
  - Early indicator of soil degradation and recovery

# NCSS Database

- ~200 visits/day to data web site
- SSL ~ 30,000 pedons
- Data from 26 universities will be incorporated
- Will double size of database



# Research Staff

- Research Soil Scientists
  - Jim Doolittle (PA) – GPR and EMI
  - Mike Wilson – soil chemistry (trace metals)
  - Rebecca Burt – soil chemistry
  - Phil Schoeneberger – soil geomorphology; soil hydrology
  - Doug Wysocki – soil geomorphology
  - Ellis Benham – soil mineralogy
  - Moustafa Elrashidi – nutrient dynamics and management
  - Cindy Stiles – DSP, hydric soils
  - Skye Wills – statistics

# Research Activities

- Electromagnetic induction (EMI)
  - Salinity in Great Plains
- Ground penetrating radar (GPR)
- Chemistry/Geochemistry
  - Trace element data for urban areas
  - Bioavailability of trace elements in NYC and CO soils
  - Selenium in western states
  - Nutrient and trace element runoff and leaching
- Sampling approaches
  - Latin hypercube
- Soil quality
  - Soil change with conversion from CRP
  - Carbon assessment
  - Active carbon in landscape
  - Dynamic soil properties

# Cooperator Research Projects

- SSD funded
- MLRA SSOs/Research staff/Laboratory involved
- 2009 Projects
  - Soil Survey Investigations of Freshwater Subaqueous Soils; U of RI
  - Soil-Landscape Investigations of MLRA 115B/120 Loess and Loess Veneer Benchmark Catenas; Purdue
  - Modeling Spodosol Distribution in Northern Idaho Landscapes (MLRA 43A); U of ID
  - Hydropedology of a Benchmark Catena in the Carolina Slate Belt; NC State
  - Vesicular horizon function in the arid western United States; hydropedology and recovery from disturbance; UC-Riverside
- Plan to fund at least 4 projects in 2010
  - RFP out
  - July 1 deadline

# Liaison Activities

- Research Soil Scientists + Reinsch
- Support for MO and SSO projects
  - Design, implementation, analysis, publication
- Examples
  - IL, IN, KY study of Benchmark soils on loessial landscapes
  - Beaver Creek, WY watershed – remotely sensed data as mapping and sampling aid
  - Panther Creek watershed, OR – soil geomorphic relationships; ecosystem services

Questions?

Comments?